ABSTRACT OF THE DISCLOSURE

A metal-gas battery, such as a zinc-air battery, has one or more metal-gas cells. Each metal-gas cell has a metal anode sandwiched between a pair of gas cathodes. Each gas cathode is disposed within a rigid retaining structure. The retaining structures of each gas cathode are attached to one another by an expandable soft pocket capable of holding an electrolyte solution. The metal anode is disposed within the soft pocket without an enclosure separator bag. The metal-gas cell is mechanically refueled by expanding the soft pocket to allow easy removal from the cell of a spent anode and easy insertion into the cell of a fresh anode. In order to avoid the unpredicted electrolyte leakage, the gas diffusion electrodes are installed on the soft pocket to instead of a rigid cell housing to eliminate the stress created by different coefficients of thermal expansion of materials.